PLANET
Networking & Communication

User's Manual

ICS-2100
ICS-2102
ICS-2102S15

Industrial RS-232/RS-422/RS-485 over 100Base-FX / 10/100Base-TX Media Converter

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Revision

PLANET Industrial RS-232/RS-422/RS-485 over 10/100Base-TX/100Base-FX Media Converter User's Manual

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1. INTRODUCTION

Thank you for purchasing PLANET Industrial RS-232/RS-422/RS-485 over 10/100Base-TX/100Base-FX Media Converter – ICS-210x series. Terms of "Industrial Serial Converter" means the products mentioned titled in the cover page of this User's manual

1.1 Package Contents

Open the box of the Industrial Serial Converter and carefully unpack it. The box should contain the following items:

Check the contents of your package for following parts:

- **Industrial Serial Converter x1**
- **CD-ROM User's Manual x1**
- **Quick Installation Guide x1**
- **Wall Mount Kit x 1**

If any of these are missing or damaged, please contact your dealer immediately, if possible, retain the carton including the original packing material, and use them against to repack the product in case there is a need to return it to us for repair.

1.2 How to Use This Manual

This Media Converter User Manual is structured as follows:

- Section 2, **Installation**

  It explains the functions of ICS-210x and how to physically install the ICS-210x.

- Section 3, **Management**

  The chapter explains how to manage the converter by Web interface.

- Section 4, **Web Configuration**

  It contains information about the Smart function of ICS-210x.

- Section 5, **Software VCOM Utility**

  It explains the software VCOM how to use with the operation Virtual COM.

- **Appendix A**

  It contains cable and Smart Discovery utility information of ICS-210x.

1.3 Product Description

The **Web-Smart ICS-210x** series Media Converter / Device Server provide to converts **Industrial Serial RS-232 / RS-422 / RS-485 communication interface over Fast Ethernet networking**. There are RJ-45/SC connectors and single-mode/multi-mode media for your needs. Ethernet signal that allows two types of segments to connect easily, efficiently and inexpensively. It's time saving expense for user and SI, no need to replace the existing Serial equipment and software system.

It extends the distance of deploying Serial equipments and hosts. The selectable fiber-Optic wires on the basis of distance are flexibly provided. Therefore, this product will perfectly satisfy the diverse demands while providing reliable and efficient network solutions based on the distance and budgets of installation.

The ICS-210x make connected Serial equipment becomes IP-based. That also makes them be able to connect to a TCP/IP networking immediately. Each Web-Smart converter is able to manage through the Web Interface. The powerful Web-Smart Media Converter supports Application mode, Serial operation mode connect alarm and IP address, etc. Management function helps reduce the amount of valuable time that a network administrator spends detecting and locating network problems, otherwise it requires visual inspection of cabling and equipment. Multiple connection options for large networking environment are available as well.

The ICS-210x provides a high level of immunity to electromagnetic interference and heavy electrical surges typical of environments found on plant floors or in curb side traffic control cabinets. The feature of operating temperature range of -10 to 60 Degree C coupled with hazardous location certification (Class 1 Division 2) allows the ICS-210x to be placed in almost any location.

The ICS-210x equip with compact, IP-30 standard metal case that allows either DIN rail or wall mounting for efficient use of cabinet space, the ICS-210x provides an integrated power supply source with wide range of voltages (12 to 48V DC) for worldwide operability with high availability applications requiring dual or backup power inputs.

1.4 Applications

Access Control System – Traditional Installation

Most of the enterprise and government use access control plate and Mifare or RFID to authorize the entrance identity. With traditional deploy, access control machine use RS-232 or RS-485 serial interface and cables connect to login server. With connection to ICS-210x Serial over Fast Ethernet Converter, the access control machine is able to be extend over longer distances via fiber optical interface. The distance can be up to 15km in a local range. Or the ICS-210x can be linked to a xDSL router to get the internet access capability; the access control can be set and monitored over the internet.

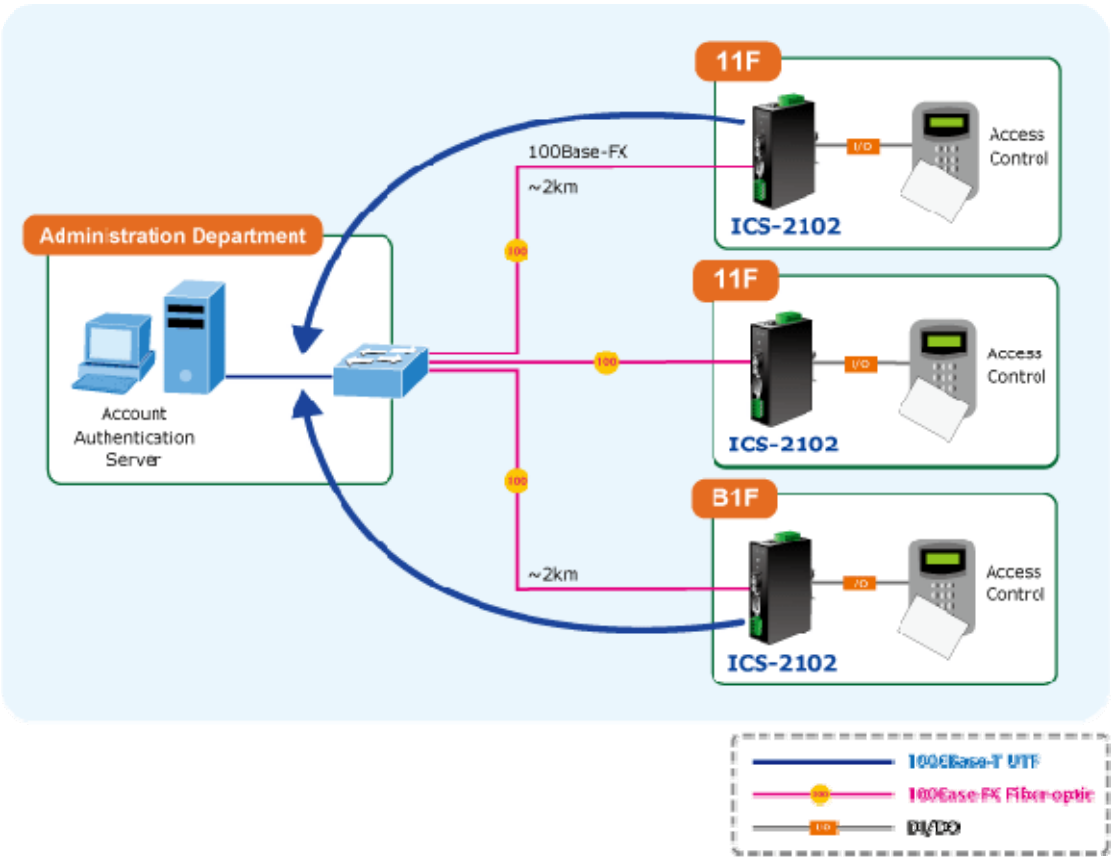


Figure 1-1 Industrial Serial Converter for Access Control System Application

Process Control

To monitor, configure and manage the Robot conveyer including other machines in a manufacturing, PLC (Programmable Logical Control) is required. The PLC is used to drive above the manufacturing machines process. The ICS-210x can be set to TCP Server mode and connect the PLC. The administrator can configure and set command settings through Fast Ethernet intranet to control the PLC, the administrator and workstation. There is no need to be always sets by the side of the I/O machine.

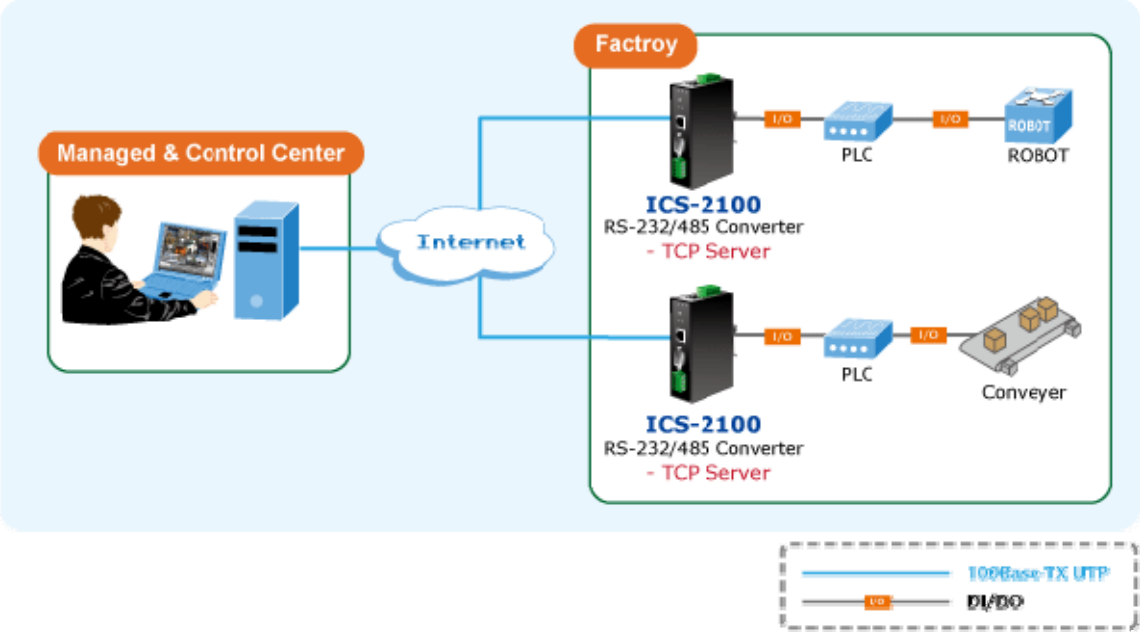


Figure 1-2 Industrial Serial Converter for Factory PLC Application

RTU Data Collect – UDP Mode

Connect with RTU (Remote Terminal Unit) to collect and monitor the data of waves, signal and power utilization. ICS-210x can be used to set-up UDP mode and send data over Fast Ethernet to Local server or over internet to remote server automatically.

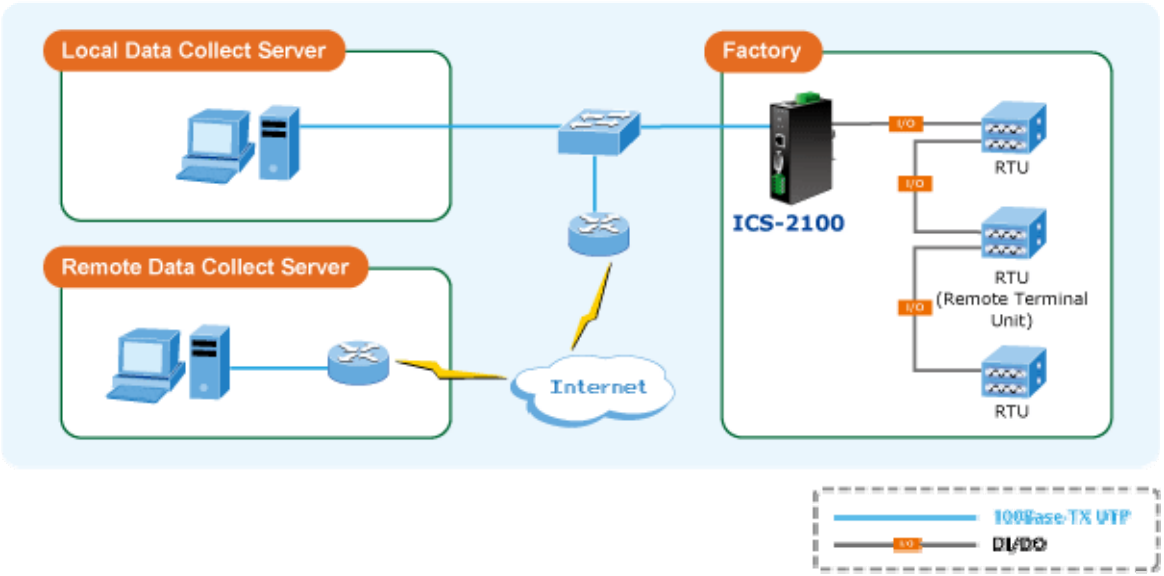


Figure 1-3 Industrial Serial Converter for Factory RTU Application

Surveillance Motion Control – Pair Connection Mode

Using pair connection along with fiber optical patch cord, the ICS-210x extend RS-232/RS-485 interfaces distance from surveillance and scanner to the control keyboard/joystick which is installed in the remote monitor center.

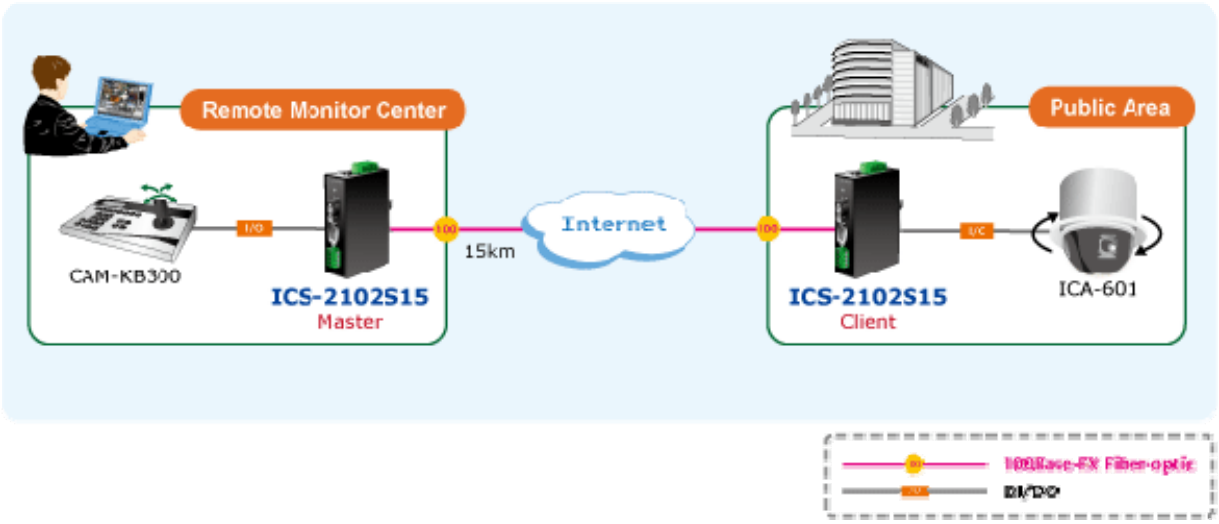


Figure 1-4 Industrial Serial Converter for Distance Extend Application

1.5 Product Features

Serial Interface

- One **RS-232** and the other **RS-422/485** port to one **10/100Base-TX** or **100Base-FX** Media Converter
- Cost effective solution for RS-232/RS-422/RS-485 to Ethernet application
- Supports RS-232 with DB9 interface, 4-wire RS-422 or 2-wire RS-485 with terminal block operation
- Asynchronous serial data rates up to 230400bps

Ethernet Interface

- Complies with IEEE 802.3, IEEE 802.3u 10/100Base-TX, 100Base-FX standard
- Supports auto MDI/MDI-X function on RJ-45 Port for ICS-2100
- Supports 100Base-FX multi-mode SC concocter up to 2km for ICS-2102
- Supports 100Base-FX single-mode SC concocter up to 15km for ICS-2102S15

Smart Functions

- Standard TCP/IP interface and versatile operation modes
- Software Protocol Support ARP, ICMP,TCP/IP, UDP, HTTP server, DHCP client, Telnet server/client
- Built-in IP-Base **Web interface** for remote management
- Serial Operation mode selected via Web management
- Pair Connection mode for connecting two serial devices over a network
- PLANET Smart Discovery utility automatically finds client devices on the network
- Firmware upgrade via HTTP protocol

Hardware

- LED indicators for easy network diagnose
- Reset Button at the front panel for reset to factory default

Industrial Case / Installation

- IP-30 Metal case / Protection
- DIN Rail and Wall Mount Design
- 12 to 48V DC, redundant power with polarity reverse protect function and connective removable terminal block for master and slave power
- Supports EFT protection 6000 VDC for power line
- Supports 6000 VDC Ethernet ESD protection
- -10 to 60 Degree C operation temperature

1.6 Product Specification

Model	ICS-2100	ICS-2102	ICS-2102S15
Serial Port			
Interface	RS-232 x 1 RS-422 / RS-485 x 1		
Connector	DB9 for RS-232 Terminal block for RS-422 / RS-485		
Baud Rate (Data Rate)	300bps to 230400bps		
Data Bits	5,6,7,8		
Parity Type	1, 1.5/2		
Stop Bit	Odd, Even, None, Space, Mark		
Flow Control	H/W, None		
Signals	RS-232: DCD, RxD, TxD, GND, RI RS-422: Tx+, Tx-, Rx+, Rx- RS-485: Data A (+), Data B (-)		
Fast Ethernet Port			
Standard	10/100Base-TX	100Base-FX	
Connector	RJ-45	SC	
Mode	-	Multi-Mode	Single-Mode
Distance	100m	2km	15km
Optical Wavelength	-	1300nm	1310nm
Cable	Twisted-pair	50/125μm or 62.5/125μm multi-mode fiber cable	9/125μm single-mode cable
Hardware			
LED Indicators	System: Power 1, Power 2, Fault TP or Fiber Port: Link / Active Serial Port: Serial port mode, RS-232, RS-422 or RS-485		
Management	Web Management PLANET Smart Discovery Utility VCOM		
Operation Mode	TCP Server TCP Client UDP Client		

	Virtual COM Telnet Server Pair Connection – Remote (Slave) Pair Connection – Local (Master)	
Dimension(W x D x H)	135 x 97 x 32 mm	
Weight	425g	431g
Power Supply	12~48V DC, Redundant power with polarity reverse protection function	
Power Consumption	10.1 Watts / 34.44 BTU (max)	
Installation	DIN rail kit and wall mount ear	
Alarm	Provides one relay output for power fail, Alarm Relay current carry ability: 1A @ DC 24V	
Mechanical	Metal	
Environment	Operating Temperature: -10~60 Degree C Storage Temperature: -20~75 Degree C Operating Humidity: 10%~90% RH Storage Humidity: 5%~90% RH	
Emissions	FCC Class A, CE Certification Class A	
Standards	IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX / 100Base-FX EIA/TIA RS-232/422/485	
Regulatory Approval	RoHS	
Stability Testing	IEC60068-2-32(Free fall), IEC60068-2-27(Shock), IEC60068-2-6(Vibration)	
Note.	Reset Button at the front panel for reset to factory default	

2. HARDWARE INSTALLATION

This section describes the hardware features and installation of the ICS-210x's components on the desktop or shelf. For easier management and control of the ICS-210x, familiarize yourself with its display indicators, and ports. Front panel illustrations in this chapter display the unit LED indicators. Before connecting any network device to the Industrial Serial Converter, please read this chapter completely.

2.1 Hardware Description

2.1.1 Product Layout

Figure 2-1 to Figure 2-2 show front panel of ICS-210x.

ICS-2100

– RS-232 / RS-422 / RS-485 over 10/100Base-TX

Figure 2-1 PLANET ICS-2100 Front Panel

ICS-2102 / ICS-2102S15

– RS-232 / RS-422 / RS-485 over 10/100Base-FX

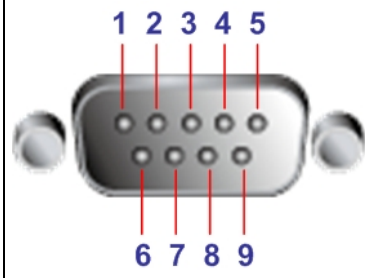
Figure 2-2 PLANET ICS-2102/2102S15 Front Panel

2.1.2 LED Indicators

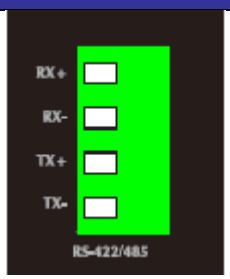
LED	Color	Function	
P1	**Green**	**Lit**	Indicate the power 1 has power.
P2	**Green**	**Lit**	Indicate the power 2 has power.
FAULT	**Green**	**Lit**	Indicate the either power 1 or power 2 has no power.
TP or Fiber	**Green**	**Lights**	To indicate that the Fast Ethernet Port is successfully connecting to the network at 10Mbps or 100Mbps
		Blinks	To indicate the Fast Ethernet Port is receiving or sending data
Serial	**Green**	**Lights**	To indicate that the UART Port is connected successfully
		Blinks	To indicate the UART Port is receiving or sending data

2.1.3 DB9 and Terminal Block Pin Define

■ **DB9 Pin Define for RS-232**

	DB9-PIN	RS-232
	1	DCD
	2	RXD
	3	TXD
	4	
	5	GND
	6	
	7	
	8	
	9	RI

■ **Terminal Block Define for RS-422/485**

	Terminal Block Pin	4-wire for RS-422	2-wire for RS-485
	RX+	RX+	
	RX-	RX-	
	TX+	TX+	Data A(+)
	TX-	TX-	Data B(-)